REMARKS

Claims 1, 3-7 and 9-20 are pending in the present application. Claim 1 is in independent form. No new matter has been added. In view of the following remarks, favorable reconsideration and allowance of the present application is respectfully requested.

I. CITED ART REJECTIONS

Claims 1. 3, 4, 9 and 17-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nakagawa et al., Japanese Publication No. JP 57-188432 (hereinafter "JP '432"), in view of Aulich et al. (hereinafter "Aulich"), U.S. Patent No. 4,294,811.

Applicants respectfully traverse the rejection for the reasons stated below.

Independent claim 1 is directed to a method for producing high silicate glass, the method including (*inter alia*) "a phase-separating step of subjecting to heat treatment borosilicate glass containing any one element of manganese, cerium, chromium, cobalt, and copper," "wherein the borosilicate glass includes 0.1 wt% to 2.0 wt% of an oxide of the one element of manganese, cerium, chromium, cobalt, and copper." Applicants submit that the combination of JP '432 and Aulich fails to explicitly teach, or otherwise suggest, the above features recited in independent claim 1.

In the Office Action mailed on March 11, 2010, the Examiner relied on Aulich to teach the deficiencies of JP '432. In particular, the Examiner stated that "...Aulich teaches it is commonly known in the art that copper, cobalt, chromium, cerium, and manganese are commonly known contaminants of borosilicate glass of which weight percentages will are commonly in the range of 0.1 wt % to 2.0 wt % (Column 3, lines 56-61)." Office Action mailed on March 11, 2010, p. 3. Applicants argued that Aulich does not teach, or suggest, a

borosilicate glass including 0.1 wt% to 2.0 wt% of an oxide of the element of manganese, cerium, chromium, cobalt, and copper.

First, in response to Applicant's argument, the Examiner states that "[o]xides examples include Copper and Chromium and other transition metals (Col 3, lines 28-35). These metals (impurities) accumulate in the soft phase during phase separation (Col 3, lines 50-55 and col. 4, lines 3-27)." Action, p. 4.

However, Applicants submit that column 3, lines 28-35 of Aulich states that "...a substantially uniform admixture of boron oxide and alkali-metal carbonates and/or **alkali-metal** oxides, preferably soda, is heated up in a suitable melting vat or crucible at a temperature of about 1200°C to 1400°C., along with appropriate amounts of quartz sand so as to obtain a substantially uniform molten glass." Emphasis added. Thus, Aulich teaches that alkali-metal oxides (in other words, oxides of Li, Na, K, Rb, Cs and F), not transition oxides such as Cu and Cr, as asserted by the Examiner.

Furthermore, column 3, lines 50-55 of Aulich states that "[d]uring the annealing step, a phase separation occurs in the glass whereby impurities (iron, copper, chromium and other transition metals) accumulate in the alkali-rich (soft) phase, sometimes referred to herein and in the claims as the impurity-rich phase (see U.S. Pat. No. 3,650,721)." And, column 4, lines 23-27 of Aulich states that "[d]uring a demonstration of the inventive process as above described, the concentration of iron, copper and chromium in such porous glass bodies was spectro-analytically ascertained to be less than 1 ppm."

However, nothing in the above portions (and the related discussion) of Aulich suggests that the impurities are **oxides** of copper, chromium and other transition metal impurities.

Secondly, the Examiner further states that "[t]he claimed metal oxide contaminate weight percent concentration of 0.1 to 2.0 wt% is a known metal oxide

contaminate concentration found in borosilicate glass as referenced by Marshall et al (US 4933307) who teaches borosilicate glass comprises trace materials including Chromium Oxide within the claimed range of 0.1 to 2.0 wt% (Example 2) or Boyd (US 4116704) teaches borosilicate glass containing manganese oxide (MnO2) within the claimed range of 0.1 to 2.0 wt% as well as cobalt oxide (Col 1, Table)." Action, p. 4.

However, as previously-discussed on pages 8 and 9 of Applicants' Response filed on June 10, 2010, Aulich relates to quartz glass, not borosilicate glass. Both Marshall and Boyd relate to borosilicate glass.

Thus, absent inappropriate hindsight of the Applicants' own disclosure, there is no motivation to combine Marshall and Boyd with Aulich.

For at least these reasons, Applicants maintain that JP '432 in view of Aulich fails to explicitly teach, or otherwise suggest, a method for producing high silicate glass including "a phase-separating step of subjecting to heat treatment borosilicate glass containing any one element of manganese, cerium, chromium, cobalt, and copper," "wherein the borosilicate glass includes 0.1 wt% to 2.0 wt% of an oxide of the one element of manganese, cerium, chromium, cobalt, and copper" as recited in independent claim 1.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the §103(a) rejection to independent claim 1, and claims 3, 4, 9 and 17-20 at least by virtue of their dependency on independent claim 1.

(B) Claims 5 and 10-12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nakagawa in view of Aulich and in further view of Elmer, U.S. Patent No. 3,113,855.[1]

[1] The Examiner refers to U.S. Patent No. 3,113,855 as "Corning Glass Works." However, the '855 Patent belongs to Elmer and is assigned to Corning Glass Works. Thus, Applicants

Applicants respectfully traverse the rejection for the reasons stated below.

Elmer, directed to a method of increasing the annealing point of high silica glass, fails to teach, or suggest, that borosilicate glass contains "0.1 wt% to 2.0 wt% of an oxide of the one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1. Thus, Elmer fails to cure the above-noted deficiencies of JP '432 and Aulich with respect to independent claim 1.

Claims 5, 10, 11 and 12, by virtue of their dependency on independent claim 1, are patentable over the combination of JP '432, Aulich and Elmer.

As such, Applicants respectfully request that the Examiner reconsider and withdraw the §103(a) rejection to claims 5, 10, 11 and 12.

(C) Claims 17-20 stand rejected under 35 U.S.C. §103(a) as unpatentable over Nakagawa in view of Aulich or Nakagawa et al., Japanese Patent Publication No. 57-205337 (hereinafter "JP '337").

Applicants respectfully traverse the rejection for the reasons stated below.

JP '337 teaches that "...a borate glass composed mainly of SiO_2, B_2O_3 and Na_2O..." is used. JP '337, Machine Translation, p. 3. There is no teaching, or suggestion, in JP '337 that the borate glass contains "0.1 wt% to 2.0 wt% of an oxide of the one element of manganese, cerium, chromium, cobalt, and copper" as recited independent claim 1. Thus, JP '337 fails to cure the above-noted deficiencies of JP '432 and Aulich with respect to independent claim 1.

Claims 17-20, by virtue of their dependency on independent claim 1, are patentable over the combination of JP '432, Aulich and JP '337.

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refer to the reference as "Elmer" in order to avoid any ambiguity in the arguments made of the record.

As such, Applicants respectfully request that the Examiner reconsider and withdraw the §103(a) rejection to claims 17-20.

CONCLUSION

Accordingly, in view of the above, reconsideration of the rejections and allowance of each of claims 1, 3-7 and 9-20 in connection with the present application is earnestly solicited.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By _____
Donald J. Daley, Reg. No. 34,313

DJD/CDW:ljs

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P.O. Box 8910
Reston, Virginia 20195
(703) 668-8000